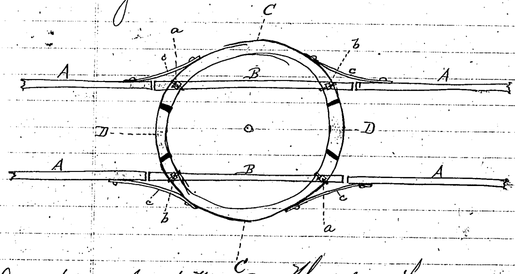
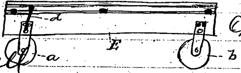
UNBOUND NOTES AND DRAWINGS

1882

Electrical Connections for Turn-Table of Electric Railroad



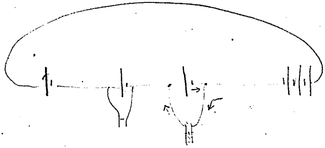
Connections made at Menlo Park March 13th 1882 in Turn Table. Sketch made March 19th 1882



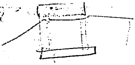
Witness
Saml Insull
19th Mar 82.

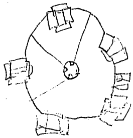
Chas T. Hughes

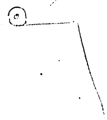
A Represents main tracks; B Represents tracks of Turn Table, supported on timbers E of Turn Table; a Represents casters connected electrically with rails B by wires d; b represents insulated casters; C represents sections of stationary circular track upon which casters a, b travel; c represents connections between tracks A and sections C; D insulated sections of sufficient width to prevent short circuit when Turn Table is moved

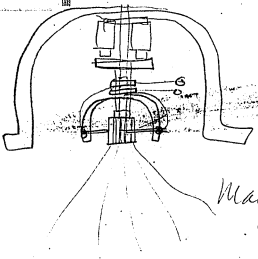


May 10 1882
TAE





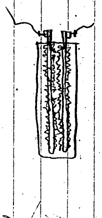




May 10 1882
TAE

May 31 82

Disadvantages of Planté
Small surface. Had to reduce to thick oxide on surface & this cracked off & separated from plate producing bad contact through resistance &c
But with air boxes multiplied elastic
thin reduction sufficient &c &c.



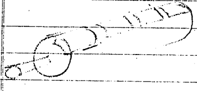
Leafy
Integral.
Increase of surface
Oxides become
separated, contact
bad, & inert.
Spongy lead same.

Powdered [illegible] be united ends pinched.

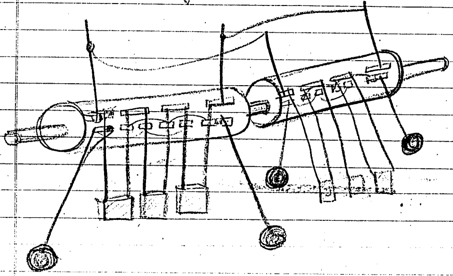
Total surface of
metallic lead in
with the whole mass
Pl. for use. C

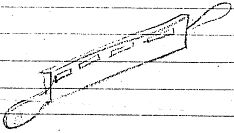
[illegible] water [illegible]
[illegible]
[illegible]
Metallic lead can be dipped
then in [illegible] to separate.

(7281)

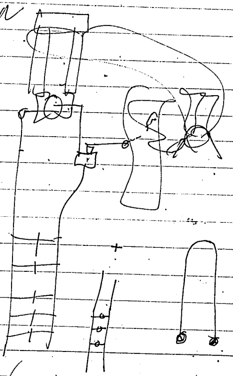


June 11 1984 4pm





Witness
Sarah [illegible]
22nd June, 1880

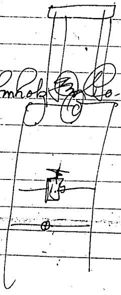


1 2.

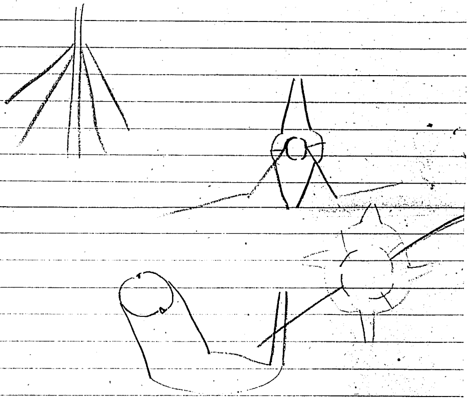
Anders

Anderson

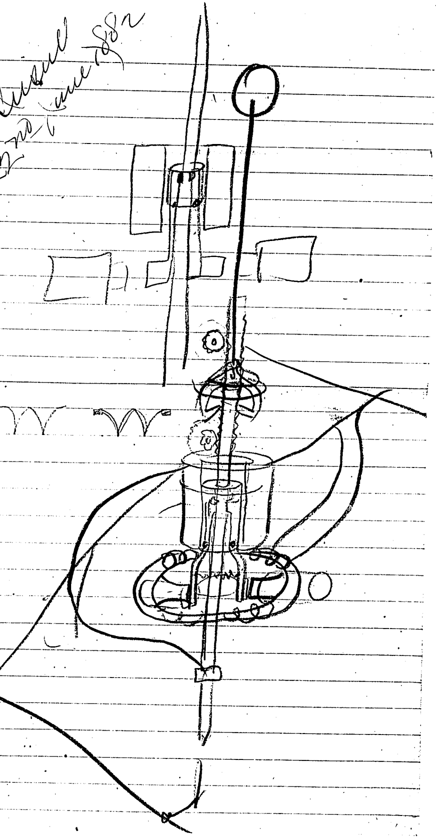
Tredgar Helmholz Co. -



Witness
Saml [illegible]
22nd June 1882



witness
Samuel Russell
22nd June 1882



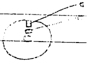
Warring
Warrington
Warrington

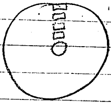
Life

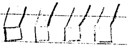
Production

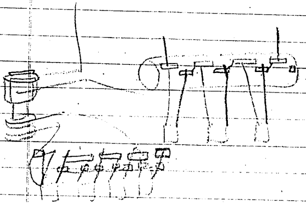
Warring

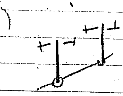
Witness
Saml Insull
22nd June 1882

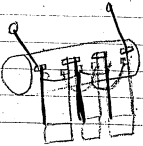












Eng

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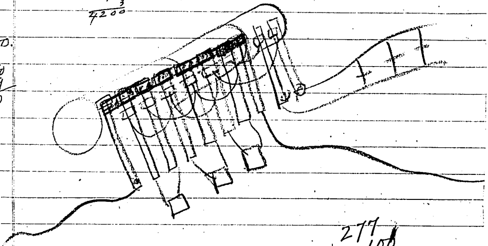

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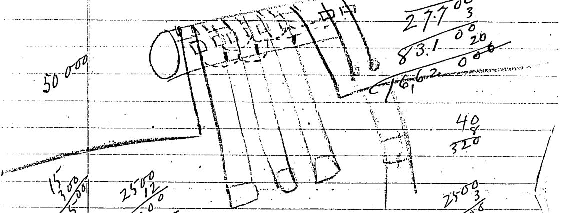

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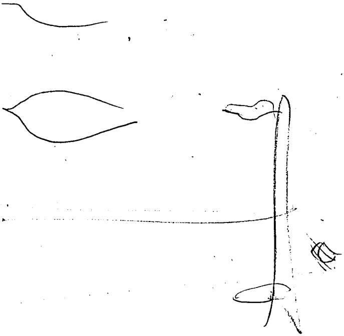
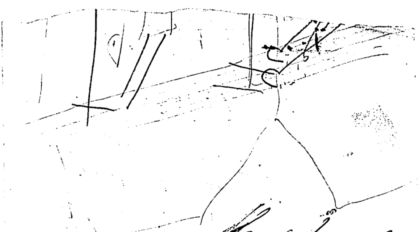
5

Witness

Saml Insull

22nd June 1882





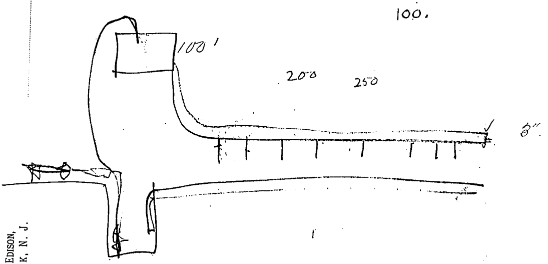
Saml Insull

28th June 82

THOMAS A. EDISON
MENLO PARK, N. J.
188

188

THOMAS A. EDISON,
MENLO PARK, N. J.



Position

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450,000
300
135,000,000

40,000.
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600,000

600
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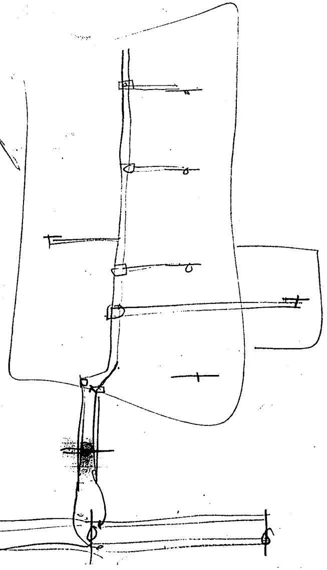
180.000,000

MENLO PARK
NEW JERSEY

Saml Insull
28th June 1882



THOMAS A. EDISON,
MENLO PARK, N. J.

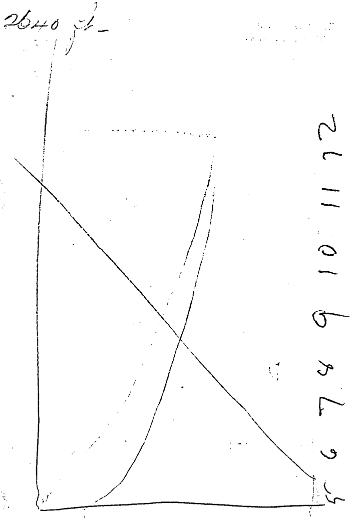
........................188

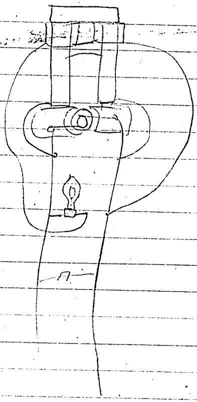
15 Light 10 [illegible]
60 [illegible]
150 4 900
250 4 1850

S. S. S.
That Order
as Soon as poss

Mexico (Wen[illegible]
Cuba
Souranso Coal

2640 ft





Saml Insull
29th June 1882

T. A. EDISON,

Menlo Park, N. J., 1880.

Electricity on gases
Brodie
Proc Roy S XX 472
Phil Mag (4) XLiv 470

10th Aug 82
J.F.

T. A. EDISON,

Menlo Park, N. J., 1880.

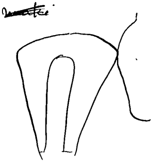
Sal ammonic & Slacked lime,
a large excess of lime should be employed
1 part by weight of powdered Sal Ammoniac mixed with
2 parts by weight of Caustic Lime slaked to a
fine powder — mix well - put in Capacious
jar and heat over Bunsen burner with gauze
interposed) — drying tube should be
filled with small lumps of quicklime
(unslaked)

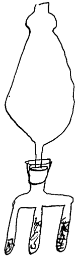
10th Aug 82
J.F.

T. A. EDISON,

Menlo Park, N. J., ... 1880.

~~[illegible]~~





CO, absorbed by heated potassium
176 Fahr
also heated potassic Hydrate,
also absorbs CO_2
Phosphorus balls or K metal
for O Phos must be heated

Samuel Insull
[illegible]

THOMAS A. EDISON,
No. 65 FIFTH AVENUE,

NEW YORK,.......................188

Mr Edison:

I have made the solution of ferrocyanide of iron, sulphate of iron and SO_4 in many different proportions and in each case the color changes to a whitish crystalline color under the heat.

Then at a suggestion from Watt's Dictionary, I dissolved ferrocyanide of iron in oxalic acid. This solution saturated with ferrocyanide gives fair appearing result, but under the heat it changes to a reddish cinder-hue, as if destroyed.

Respectfully
Charles L. Bristol.

August 24.

Mr. T. A. Edison.
Present.

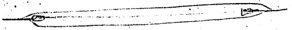
33

Brisott

Aug 24.82

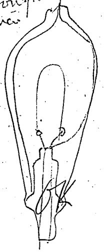
Oct 4 1882

Solid glass.



Carbon surrounded with pure Silica & brought to incandescence while in vacuum. then glass melted.

Use this process Coat carbon with Zircon Silica, magnesia etc take out & put in new globe,

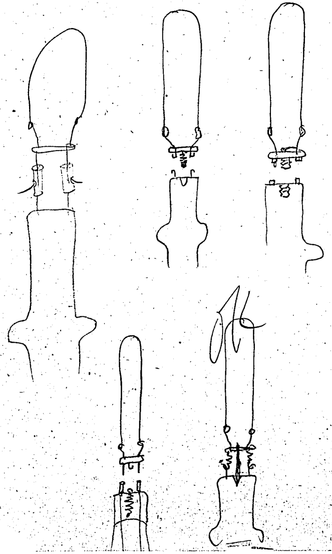


inside wire to chg globe

(10)

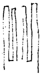
Treat paper by Hydrofluoric acid to Parchmentize?

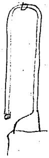
Oct 4 1882

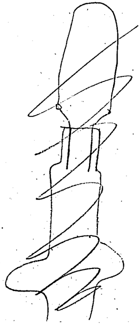


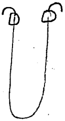
Mix Collodion with parchmentized jelly of Cellulose & see if it dont make a good Solid material

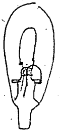
Carbonize Lampwick







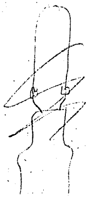


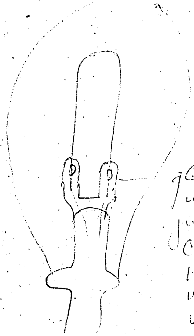


Try thread paper Etc
in Hydrofluoric acid.
The acid will go away
itself & renders washing
unnecessary

Try phosphoric acid for
parchmentizing

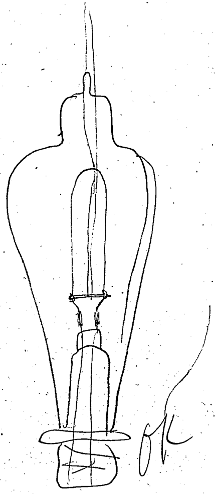
Caveat

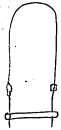


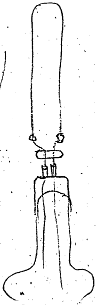


glass tubes
with hole
just enough
Carbon go
through it
will pbbly seal
when Carbon
whd in pump
& thus prevent
Carrying

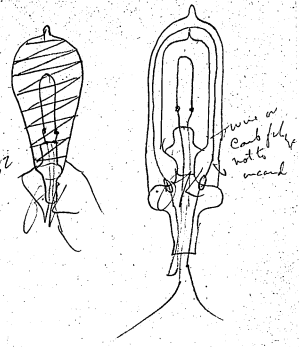
Patent two fibres in one
globe that can be lighted
seperately, then Exhaust &
bring up both then if uneven
pass cyanogen or HCarbon gas
or Chl Carbon prefbly cyanogen
as it leaves no white &
Equalize them then connect
together in one socket
so as to get 20 candles
from both & have 500 ohms
~~if one~~







Patent

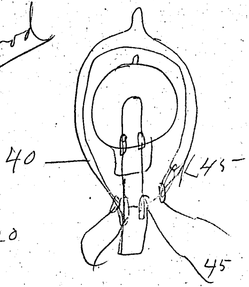

wire or Carb fil not to vacuum

Oct 4 1882
TAE

a Carb filament,
The wire ~~that goes into~~ the ~~outing~~ globe has a greater ~~surface~~ than the filament,

---

Good



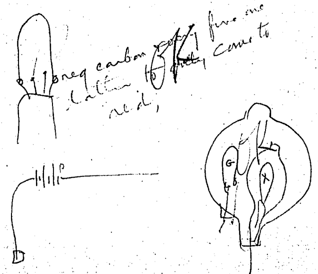
8 dia 13 long

$$\begin{array}{r} 24 \\ 13 \\ \hline 72 \\ 24 \\ \hline 312 \end{array} \qquad 9 \qquad \begin{array}{r} 29 \\ 10 \\ \hline 290 \end{array}$$

4-5

glass partition; see if this
in foreign patent,—

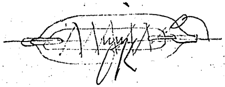
Look at Spark gauge see if
there is blocking of plat
wire in glass where sealed


reg carbon ~~[illegible]~~ fine one
platin to ~~[illegible]~~ connect to
[illegible],
P
D
G
X

X reg lamp G ~~lamp~~ a filament
in other lamp to change
outside of X lamp current
carrying –

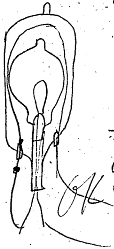
4-5

A simple wire only
Connected at one end
with Considerable
surface + only connected
may do instead of
Continuous wire with
Current,



H
Size A

"Electric Lt.
— Drawings"



to charge
outside a
Copper wire
(being used)
in outer globe.

Nov 11th 1882

Rev with Track out 68 9 ^{05} A.M.

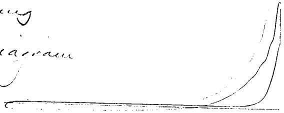
Steam 70

Rev with Track in 66 Back End.

Steam 70

40 lb spring

Double Diagram



Nov 11th 1882

Rev with Track out 68 9 ^{10} A.M.

Steam 70

Rev with Track in 65 Back End

Steam 70

40 lb spring.

Double Diagram

Nov 11th 1882

Rev with Track out 68 9 ^{19} A.M.

Steam 70

Rev with Track in 66

Steam 70

Front End.

40 lb spring.

Double Diagram

Nov 11th 1882 9^{23} a M
Rev with Back out 68
Steam 70
Rev with Back in 65
Steam 70 Front end.

H C Lt Spring

Double diagram

Nov 11th 1882 9^{45} a M
Engine & Countershafts in
Machine belts off.
Rev 70
Steam 70 Front end.

Nov 11th 1882. 9^{50} a M
Engine & Countershafts in
Machine belts off.
Rev 70
Steam 70 Back end

Nov 11th 1882

10.45 Am
Steam 70
Vac 67

Engine & Car

Going down grade
500 ft from Cable

Back end

10.47 Am
Steam 70
Vac 68

Engine & Car

2d trial down grade.
5000 ft from Cable

10.49 Am
Steam 70
Vac 64

Engine & Car

Noris Creek going up grade
7000 ft from Pole

Back end

10 51 Am
Steam 70
Line 67

Engine & Car

Circuit broken
Engine at Noe's Cut.

---

10 53 Am.
Steam 70
Line 68

Engine & Car.

Noe's Cut going down grade
6700 ft from Cable

---

10 55 am
Steam 70
Line 64

Engine & Car

Welch Cut coming up grade,
4000 ft from Cable

10 57 am
Steam 70
Air 68

Engine Car

500 ft away coming at grade

[illegible]

---

10 59 am
Steam 70
Air 68

Circuit broken

[illegible]

---

11 01 am
Steam 70
Air 70

Circuit broken

[illegible]

11:3 Am
Steam 72
Rev 68

Back end

Circuit broken

11:5 Am
Steam 74
Rev 70

Back end

Circuit broken

Nov 14th 1887

Rev with Back out 67
Steam 70
Rev " " in 66
Steam 70

40 lb spring.

Double diagram

701

Back end
8 38 AM

Nov 1st 1882

Rev with track out 69
Steam 70
Rev with track in 68
Steam 70

Train out
8.55 a.m.

No 6 spring

Double diagram

No 2

Track out No 1 66 Rev — Steam 70
" Dn " 2 67 " — " " 70
Track " " 3 64 Rev 5.20 am Steam 70
" Arm " " 4 66 " 5.22 am " " "

Train out.

No 6 spring

1 2 3 4

2

No 3

T. A. EDISON,
65 Fifth Avenue.
NEW YORK.

20
Hughes Dec.
case

Mr. Thomas A. Edison.

4:45 Cable d g 7 People
4:46 1st Car d J
4:47 2d Truck d J
4:48 2 Middle d J.
4:49 Nose Fence d J
4:50 Pumphouse J Francis Borkee

4:51 starting u g Pumphouse
4:52 2 Middle d g
4:53 Nose Car d g
4:54 2 Truck d g
4:55 M Car d g
4:56 1st Car d g
4:57 Cable d g C.B.

~~Exact~~ distance 2 Miles. within few feet more or less.

7 people on Car

2 on Loco —

pasgr Loco & Car —

20

Cards Pass
Loco & Pass
car

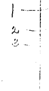
1st 2d 3d
Rev 78-77-77

Nov 20th 1882

#1 Av. Press 5.4 H.P. 17.28
#2 " " 8.4 H.P. 26.88
3 " " 9.5 H.P. 30.40

1st Friction
2d Field
3d Track.

Front end
30lb spring



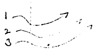
10.40 AM

4.1

1st 2d 3d #1 Av. Press 5.6 H.P. 12.92
Rev 78 77 77 #2 " " 7.8 H.P. 24.96 20th 1882.
3 " 10. H.P. 32.
Steam 50.

1st Friction
2d Fields on
3d Track "

Back end
30lb spring



10.40 A.M.
Constant = .0421166 which multiplied by steam press & revs. = H.P.

4.2

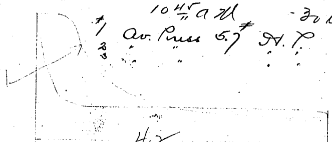
1st 2d 3d
Rev 80 79 79
Steam 51

Nov 20th 1882

Back end
30lb spring

10.45 A.M.

#1 Av. Press 5.7# H.P. 19.15
2 " " " "
3 " " " "



4.2

Area = .8

#
#1 = .78
2 = 1.1
#3 = 1.41

1 Area .94
2 Area 1.15
3 Area 1.3

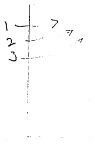
1st 2d 3d
Rev 80 79 79
Steam √1

Nov 20th 1882

1st Friction
2d Field in
3d Track on

Front end
Bolt Sp

10 45 A.M.



4.17

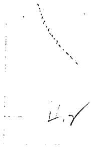
#1 Av. P. 5. H.P. 16.80
#2 Av. P 7.9 H.P. 26.07
#3 Av. P 8.6 H.P. 28.38

1st 2d 3d
Rev 78 77 77

Nov 20th 1882

1st Friction
2d Field on
3d Track on

Back end
Bolt Spring



10,50 A M

#1 Av. Press H.P.
#2 Av. Press H.P.
#3 Av. Press H.P.

4.1

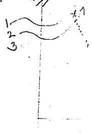
1st 2d 3d
Rev 78 77 77

Nov 20th 1882

#1 A.P 5.85# H.P 19.12
#2 A.P 8.76# H.P. 28.29
#3 A.P. 9.51# H.P 30.71

1st Friction
2d Field
3 Track

Front end
Bolt Spring



10.50 A M

4.1

1 Area = .8
2 = 1.2
3 = 1.3

1 Area = .7
2 = 1.1
3 = 1.2

Front End
Freight Engine 3 loaded cars
18 Tons

11 10 Am
30 lb spring
Tram 52

Rev 74

At cable down grade
Av. Press 18# H.P. 55.8

Back end
Freight Engine 3 loaded cars
18 Tons.

11 10 Am
30 lb spring
52

74

At cable down grade
Av. Press 11.22 H.P. 34.78

4.17

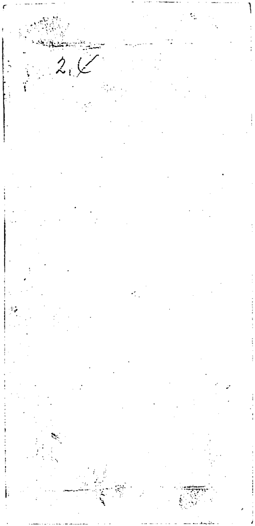
Front end
Freight Engine & 3 loaded cars
18 Tons.

11 13 Am
30 lb spring
Tram 56

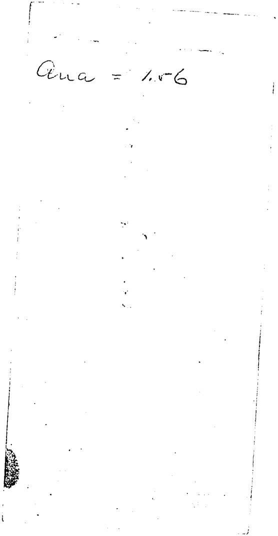
Rev 76

Av. Press 17.37 H.P. 55.41

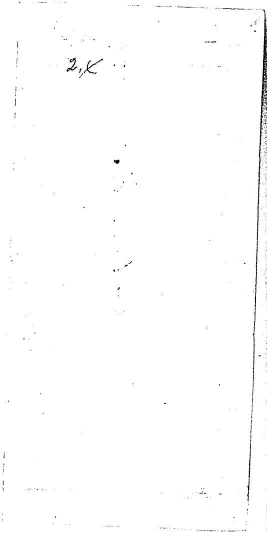
4.16
700 ft away from Cable down grade



2,K



Ana = 1.56



2,K

Back end
Freight Engine & 3 loaded cars
18 Tons

11.13 Am
30 lb spring
Arm 50

Rev 76
Av. Press 19.62 H.P. 62.58

4.17
400 ft away from Cable down grade

Front end
Freight Engine & 3 loaded cars
18 Tons

11.15
30 lb spring
Arm 50

76
Av. Press 18.06# H.P 57.61

4.15
1700 ft away from Cable down grade

Back end
Freight Engine & 3 loaded cars
18 Tons.

11.15 Am
30 lb spring
Arm 50

Rev 76
Av. Press 20.07# H.P. 64.02

4.18
1200 ft away from Cable down grade

2,8

2,5

2.73

Front End
Freight Engine & 3 loaded cars
18 Tons.

1110 Am
30lb Spring
Steam 50
Rev 74

Av. Press 16.77 H.P. 51.98

4.11
4700 ft away from Cable down grade

Back end
Freight Engine & 3 loaded cars
18 Tons.

1110 Am
30lb spring
Steam 50
Rev 74

Av. Press 17.9# H.P. 55.61

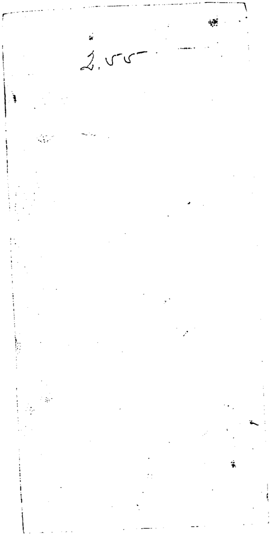
4.13
4700 ft away from Cable down grade

Front end
Freight Engine & 3 loaded cars
18 Tons.

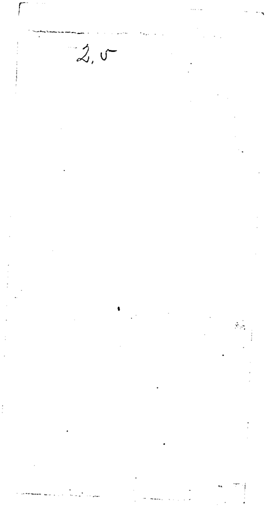
1118 Am
30lb spring
Steam 49
Rev 76

Av. Press 18.3# H.P. 58.37

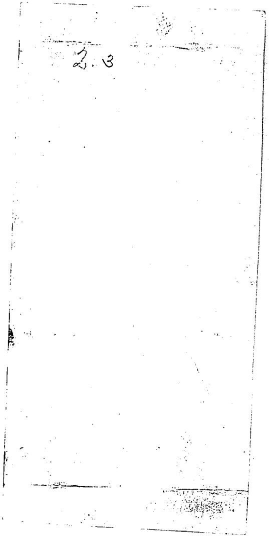
4.18
4800 ft away from Cable up grade



2.55



2.5

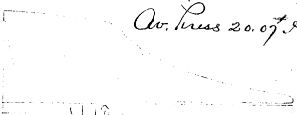


2.3

Back end
Freight Engine & 3 loaded Cars
18 Tons.

1118 a.m.
30 lb spring
Steam 49
Rev 76

Av. Press 20.07# H.P. 62.02



4.10

4800 ft away from Cable up grade

Front end
Freight Engine & 3 loaded cars
18 Tons.

11,20 a.m.
30 lb spring
Steam 49
74

Av. Press 18.42# H.P. 57.10

4.15

5700 ft away from Cable up grade

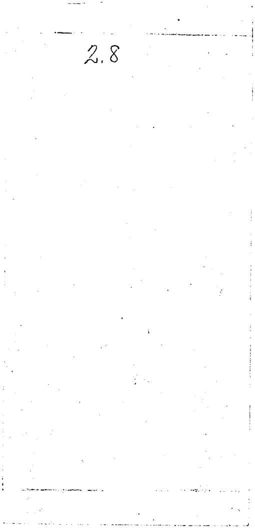
Back end
Freight Engine & 3 loaded cars
18 Tons.

1120 a.m.
30 lb spring
Steam 49
Rev 74

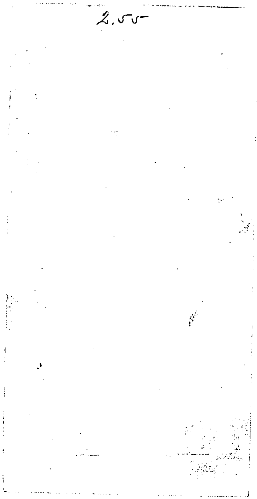
Av. Press 19.98 H.P. 61.93

4.12

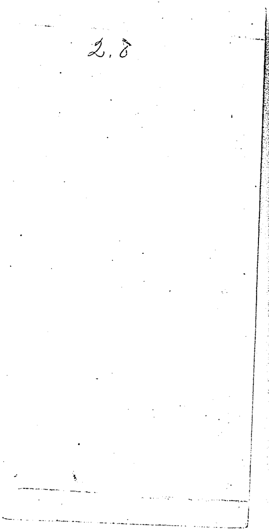
5700 ft away from Cable up grade



2.8



2,55



2,8

Front end
Freight Engine & 3 loaded Cars
18 Tons.

1122 AM
30 lb Spring
Steam 49
Rev 74

Av. Press 18.78# H.P. 58.21

4.15
6100 ft away from Cable up grade

Back end
Freight Engine & 3 loaded Cars
18 Tons.

1122 AM
30 lb Spring
Steam [illegible]
Rev 77

Av. Press 20.01# H.P. 62.03

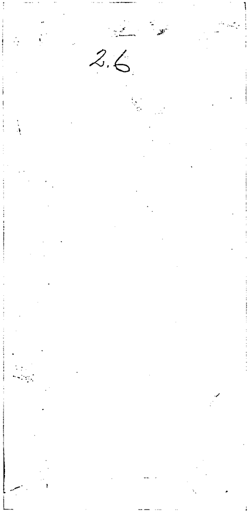
6100 ft away from Cable up grade

Front end
Freight Engine & 3 loaded Cars
18 Tons.

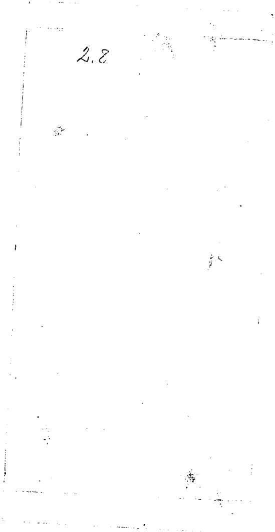
1124 AM
30 lb Spring
Steam 50
Rev 76

Av. Press 18.78# H.P. 59.9

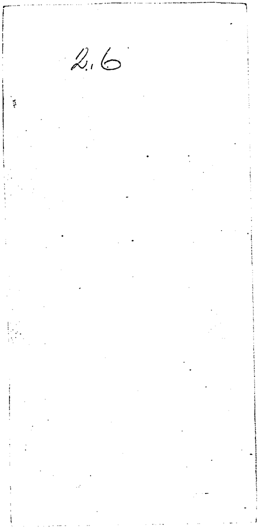
4.15
6500 ft away from Cable up grade



2.6



2.8



2.6

Back end
Freight Engine & 3 loaded Cars
18 Tons

11 24 am
30lb spring
Steam 50
Rev 76

Av. Press 19.35# H.P. 61.72

4.18
6500 ft away from cable up grade

Front end
Freight Engine & 3 loaded Cars
18 Tons.

11 25 am
30 lb spring
Steam 50
Rev 74

Av. Press 18.33 H.P. 56.73

4.15
6700 ft away from cable down grade

Back end
Freight Engine & 3 loaded Cars
18 Tons

11 25 am
30 lb spring
Steam 50
Rev 74

Av. Press 19.59. H.P. 60.72

4.18
6700 ft away from cable down grade

2.73

2.4

2.7

Front end
Freight Engine & 3 loaded Cars
18 Tons

11.29 A.M.
30 lb spring
Mean 50
Rev 74

Av. Press 18.06. H.P. 55.98

. 7300 ft away 4.15 from Cable down grade

Back end
Freight Engine & 3 loaded Cars
18 Tons

11.29 A.M.
30 lb spring
Mean 54
Rev 74

Av. Press 18.27 H.P. 56.63

7300 ft away [illegible] from Cable down grade

Front end
Freight Engine & 3 loaded Cars
18 Tons.

11.30 A.M.
30 lb spring
Mean 50
Rev 78

Av. Press 17.94. H.P. 58.66

8500 ft away 4.18 from Cable down grade

2,5

2,55

2,5

11,30 A.M.
30 lb spring
Steam 50
78

Back end
Freight Engine & 3 loaded Cars
18 Tons.
Av. Press 18.9 H.P. 61.80

8500 ft away from Cable down grade
4,18

11,31 A.M.
30 lb spring
Steam 57
Bar 78

Front end
Freight Engine & 3 loaded Cars
18 Tons
Av. Press 17.07# H.P. 55.81

9300 ft away from Cable down grade
4,13

11,31 A.M.
30 lb spring
Steam 50
Bar 78

Back end
Freight Engine & 3 loaded Cars
18 Tons
Av. Press 17.4 H.P. 56.89

9300 ft away from Cable down grade
4,7

2.45–

2.35–

2.64

Front end
Freight Engine & loaded Car
18 Tons
11 33 A.M.
30 lb spring
Steam 50
Rev 76
Av. Press 19.5 H.P. 62.20

4.15
9300 ft away coming up grade

Back end
Freight Engine & loaded Car
18 Tons.
11 33 Am
30 lb spring
Steam 50
Rev 76
Av. Press 19.7 H.P. 62.84

[illegible]
9300 ft away from Cable coming up grade

Front end
Freight Engine & loaded Car
18 Tons.
11 35 A.M.
30 lb spring
[illegible]
[illegible]
Av. Press 19.5 H.P. 61.42

4.17
9100 ft away from Cable coming up grade

2,73

2,75-

2.7

Back end
Freight Engine & Loaded Car
18 Tons

11.35 AM
30 lb spring
Main 50
Rev 75

Av. Press 20.07 H.P. 63.22

V.13
9100 ft away from Cable coming up grade

Front end
Freight Engine & Loaded Car
18 Tons

11.37 AM
30 lb spring
[illegible]
[illegible]

Av. Press 19.5 H.P. 60.45

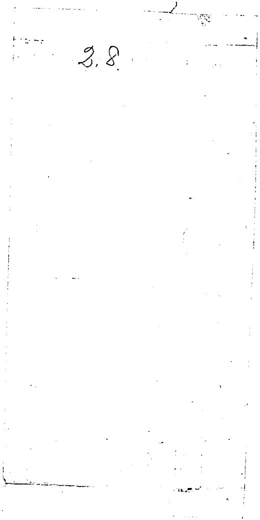
8800 ft away from Cable coming up grade
V.15

Back end
Freight Engine & Loaded Car
18 Tons

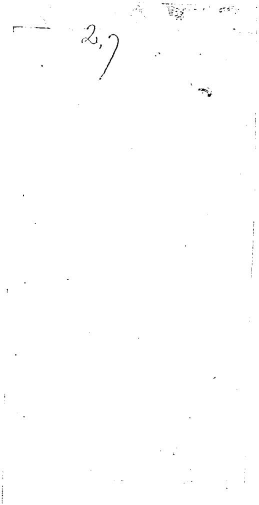
11.39 AM
30 lb spring
Main
Rev 74

Av. Press 20.22 H.P. 62.68

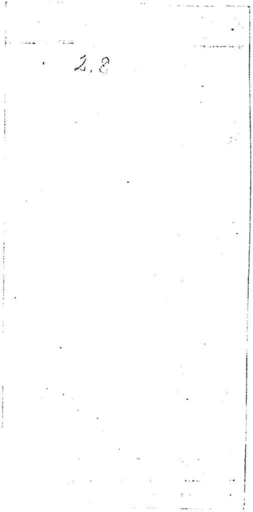
V.15
8800 ft way from Cable coming up grade



2.8.



2,7



2,8

Front end
Freight Engine & 3 loaded Cars
18 Tons
Av. Press 19.57 H.P. 60.72

11.33 a.m.
30 lb spring

4.8
8400 ft. away from Cable coming up grade.

Back End
Engine & 3 loaded Cars
18 Tons
Av. Press 20.1 H.P. 62.31

11.39 a.m.
30 lb spring
[illegible] 52
Rev. [illegible]

8400 ft. away from Cable coming up grade

Front end
Freight Engine & 3 loaded Cars
18 Tons
Av. Press. 19.65 H.P. 62.68

11.41 a.m.
30 lb spring
[illegible] 50
Rev. [illegible]

4.13
8000 ft. away coming down grade

2.74

2.8

2.73

Back end
Freight Engine & 3 loaded Cars
18 Tons

11 41 a.m.
30 lb x spring
[illegible]
[illegible] 76

Av. Press 19.2 H.P. 61.24

4.7
8000 ft away coming down grade

Front end
Freight Engine & 3 loaded Cars
18 Tons

11 42 a.m.
30 lb x spring

Av. Press 17.55 H.P. 54.4

4.18
7300 ft away coming down grade

Back end
Freight Engine & 3 loaded Cars
18 Tons

11 42 a.m.
30 lb x spring
Mean 50
[illegible] 79

Av. Press 19.8 H.P. 61.38

4.18
7300 ft away coming down grade

2.7

2.65

2.76

Front end
Freight Engine & 3 loaded Cars
18 Tons.

1146 cdm
30 lb spring
Steam 50
Rev 76

Av. Press. 17.94 H.P. 57.22

6800 ft away coming down grade

Back end
Freight Engine & 3 loaded Cars
18 Tons

1146 cdm
30 lb spring
Steam 50
Rev 76

Av. Press. 17.94 H.P. 57.22

6600 ft away coming down grade

Front end
Freight Engine & 3 loaded Cars
18 Tons.

1146 cdm
30 lb spring
Steam 50
Rev 76

Av. Press. 18# H.P. 57.42

4.15
6000 ft away coming down grade

2,5

2,5

2,5

Back End
Freight Engine & 8 loaded Cars
18 Tons
Av. Press 18# H.P. 57.42

11.46 AM
30 lb spring
[illegible]
Rev. 76

6000 ft. 4.15 away coming down grade

Front End
Freight Engine & 8 loaded Car
18 Tons.
Av. Press 18.9 H.P. 58.59

[illegible] AM
30 lb spring
[illegible]

5300 ft away coming up grade

Back end
Freight Engine & 8 loaded Car
18 Tons
Av. Press 19.5# H.P. 60.45

11.48 AM
30 lb spring
[illegible] 50
Rev. 74

5300 ft away 1.2 coming up grade

2.75

2.6

2.5

Front End
Freight engine & 3 loaded Cars
18 Tons.
Av. Press 19.5 H.P. 61.42

1150 adm
30 lb spring
Steam 50
Rev 75

4600 ft away coming up grade
4.15

Back end
Freight Engine & 3 loaded Cars
18 Tons
Av. Press 20.94 H.P. 65.96

1150 adm
30 lb spring
Steam 50
Rev 75

4.15
4600 ft away coming up grade

Front End
F Engine & 3 loaded Cars
18 Tons
Av. Press 18.9 H.P. 67.04

1157 adm
30 lb spring
Steam 50
Rev 77

4.12
4200 ft away coming up grade

2.65

2.9

2.7

Back end
Freight Engine & 8 loaded Cars
18 Tons.

11 57 AM
30 lb spring
Steam 50
Dec 97

Av. Press 19.7 H.P. 63.63

4.18
4200 ft away coming up grade

Front end
Freight Engine & 8 loaded Cars
18 Tons

11 59 AM
39 lb spring
Steam 50
Dec 97

Av. Press. 21.87 H.P. 70.64

3400 ft away coming up grade

Back end
Freight Engine & 8 loaded Cars
18 Tons.

11 53 AM
30 lb spring
Steam 50
Dec 97

Av. Press. 22.95 H.P. 74.22

3400 ft away coming up grade
4.18

3,2 3.05 2,75

Front End
Freight Engine & 3 loaded Cars
18 Tons.

11 55 AM
30 lb spring
[illegible]
[illegible] 76

Av. Press 19.35 H.P. 61.72

4.18
1500 ft away coming up grade

Back End
Freight Engine & 3 loaded Cars
18 Tons

11 5[illegible] [illegible]
30 lb spring
[illegible]
[illegible] 76

Av. Press 19.8 H.P. 63.16

1500 ft away coming up grade
4.18

Front End
Freight Engine & 3 loaded Cars
18 Tons.

11 57 AM
30 lb spring
[illegible]
[illegible] 75

Av. Press 20.37 H.P. 64.16

1700 ft away coming up grade.

2.82

2.76

2.7

Back end
Freight Engine & Loaded Cars
18 Tons.

11:57 AM
30 lb spring
[illegible]
Rev 45

Av. Press 20.94 H.P. 65.96

1700 ft away coming up grade

Front end
Circuit broken

11:58 AM
30 lb spring
[illegible]
Rev 78

Av. Press 10.47 H.P. 34.83

4.15

Back end
Circuit broken

11:58 AM
30 lb spring
Steam 50
Rev 78

Av. Press 11.19 H.P. 36.65

4.15

1.55

1.45

2.9

Front end
Circuit broken

12 10 M
30 lb spring
Atom 50
Rev 15

Av. Press 9.9# H.P. 31.18

Back end
Circuit broken

12 00 M
30 lb spring
Atom 50
Rev 75

Av. Press 10.83 H.P. 34.11

Front end
Circuit broken

12 02 P.M.
30 lb spring
Atom 150
Rev 79

Av. Press 10.17# H.P. 33.74

4.15

1.3)

1.5

1.4

Back end
Circuit broken

12 02 [illegible]
Bolt & Springs
Steam 50
Rev 79

Av. Press 10.83# H.P. 35.93

Front
78 Rev—
50 lbs

old milling machine
way

Av. Press 6.1
H.P. 20.

H.15

Back
50 lbs B.P.
78 Rev

old milling
lengthwise way

Av. Press = 4.9"
H.P. = 16.

Cylinder
16X42
Pistonrod $2\frac{1}{2}$

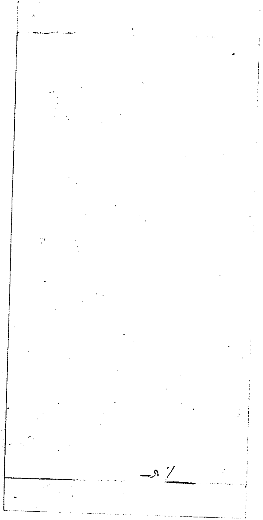
30 lb spring

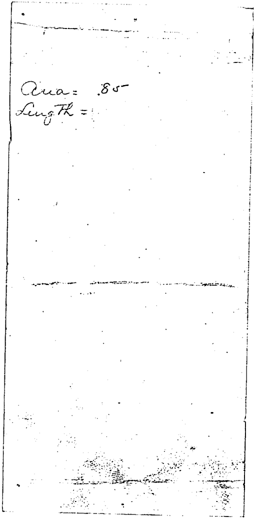
Friction of Engine & 4
dynamos — no field

constant = .0421166
constant × revs and steam press
= H.P.

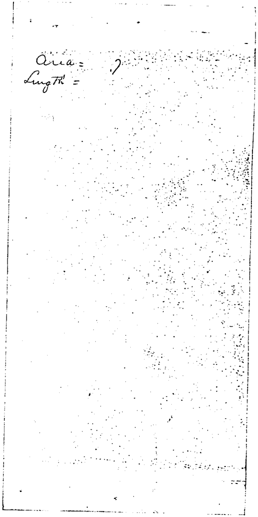
H.2

2





Area = .85
Length =



Area = .7
Length =

Back-

Spud

3 4.21

av. Press Front-
4 H.P. 6.9

Spud

4.1

Back 797 ½ Rev. 30 spg

[illegible] 50 A.P.

Field on

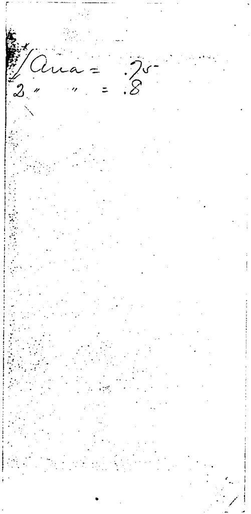
#1 av. Press 5.4 H.P. 17.55

#2 " " " 5.7 H.P. 18.52

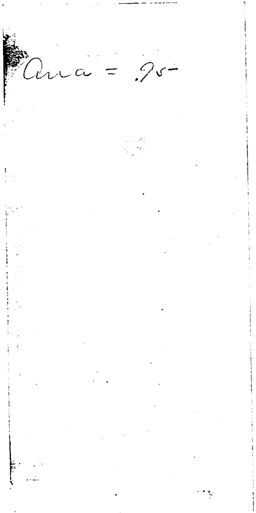
..one line is field on

other " " off

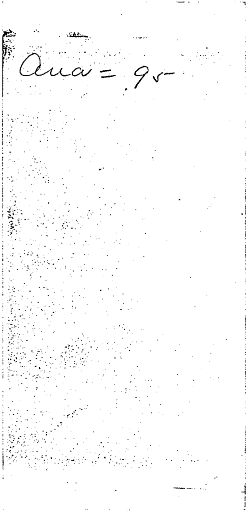
5 4.17



1 Area = .75
2 " " = .8



Area = .95



Area = .95

30 Spg —

old mill in' front . 50 lbs B.p.

Field on 77½ Rev

#1 Av. Press 5.76 H.P 18.72
#2 " " 5.04 H.P 16.38
1 one line field on
2 other " " off

6 4.15

BP 50 30 spring

front - 78 Rev both cases

1st field on -
2nd Track on -
#1 Av. Press 5.7 H.P 18.24
#2 Av. Press 6.2 H.P 19.84

7 4.1

BP 50 30 Spring

Back. 78 Rev both Cases

1st field on
2nd Track on
#1 Av. Press 5.7 H.P 18.24
#2 Av. Press 6.5 H.P 20.8

4 4.14

#1 Area = .8
#2 Area = .9

#1 Area = .8
#2 Area = .85

#1 Area = [illegible] .8
#2 " " = [illegible] .7

#1 Av. Press 6.66# H.P. 21.97
#2 " " " 6.87# H.P. 22.76 78 Rev B.P. 50
front.

1st Track in
2nd " " 3 minutes

9 4.12

78 Rev 50 BP

Back

1st Track in
2nd " 3 minutes
#1 Av. Press 6.51 H.P. 21.28
#2 Av. Press 6.09 H.P. 19.91

10 4.18

Av. Press 8.4#
H.P. 27.13 77 front.

443.

11 4.12

Area = 1.17

#1 Area = .91
#2 Area = .85

#1 Area = .92
#2 Area = .95

been something wrong with machine on previous Cards

Av. Press 7.95
H.T. 25.71

77 Front.

443

4.5

12

Av. Press. 11.13#
H.T. . 35.58

Back

76 Rev.

444 pm

4.17

13

Av. Press 10.6
H.T. 33.83 Front

444 pm - 76 Rev

4.13

14

Area = 1.46

Area = 1.55

Area = 1.1

Av. Press 17.55 front 4.46 pm 75 Rev
H.P. 55.42

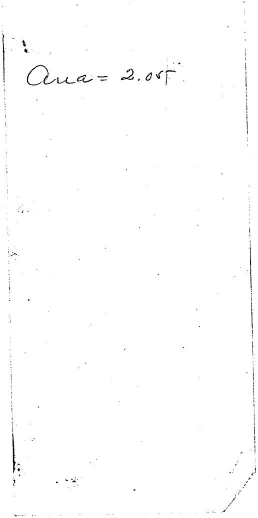
15 4.1

Av. Press 18.8 Back 75 Rev—
H.P. 57.64 446 pm

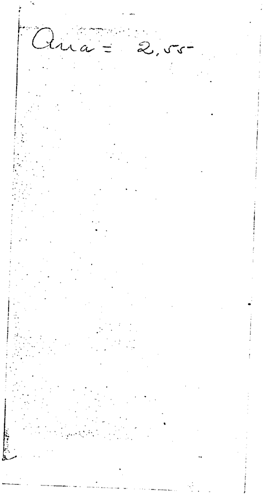
16 4.18

Av. Press 15 79 Rev
H.P. 49.5 front
4.47½ pm

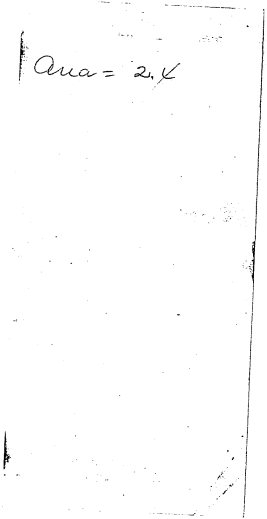
17 4.1



Area = 2.05



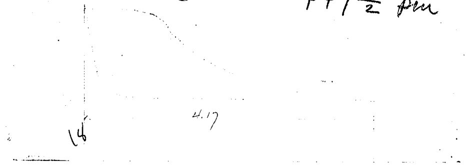
Area = 2.55



Area = 2.4

Av. Press 15.39# Back
H.P. 51.06

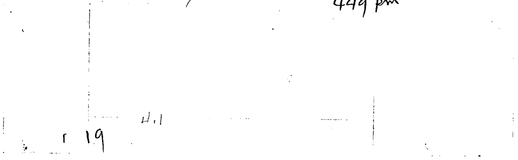
.79 Rev
447½ pm



Av. Press 14.70 Front
H.P. 47.

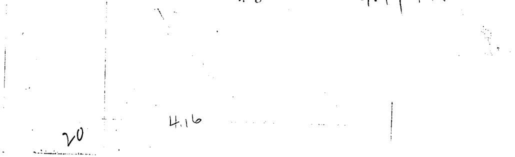
76 Rev

449 pm



Back
Av. Press = 16.2#
H.P. = 51.8

76 Rev
4.49 PM



area = 2.25
Length =

area = 2.01
Length =

Area = 2.14

Av. Press 10.17
H.P. 32.46 Front

76 Rev

450½ pm

4.12

21

Av. Press 11.71 Back
H.P. 37.37

450½ pm

76 Rev —

4.2

22

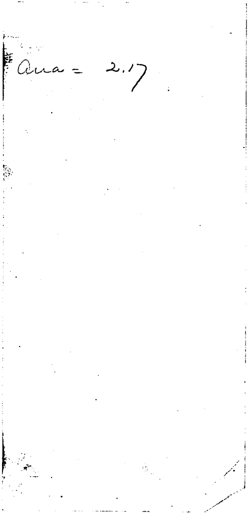
Av. Press. 15.66
H.P. 49.98 Front

76 Rev

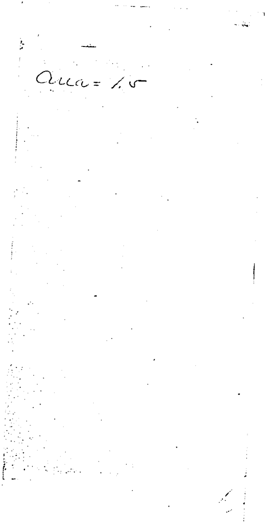
452¼ pm

4.12

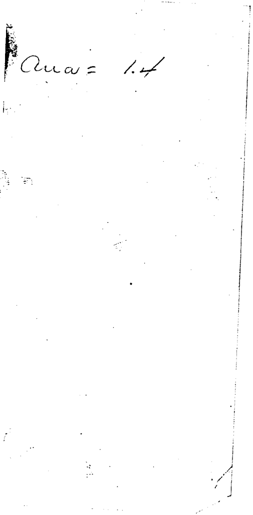
23



area = 2.17



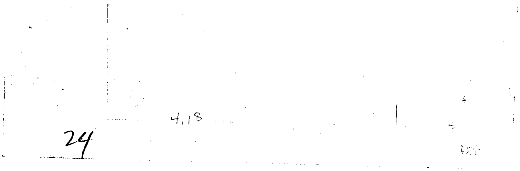
area = 1.5



area = 1.4

76 Rev

av. Press 16.86 Back 452¼ pm
H.P. 53.99

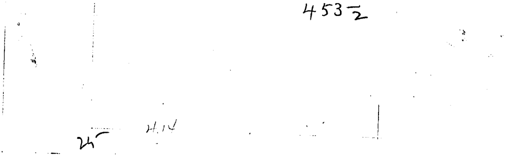

4.18

24

75½ Rev

av. Press 15.21 Front
H.P. 48.23

453½

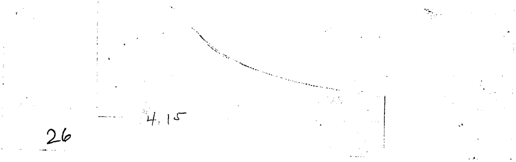

4.14

25

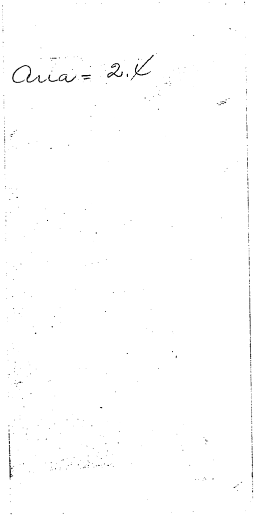
75½ Rev

av. Press 17.1 Back
H.P. 54.2

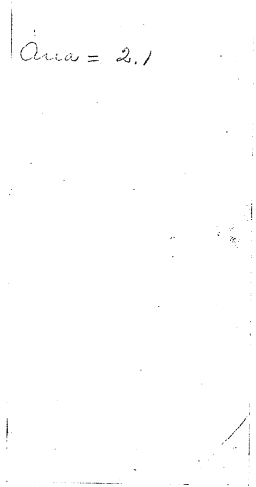
453½


4.15

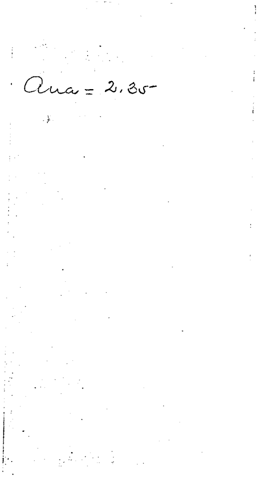
26



area = 2.4



area = 2.1



area = 2.35

Av. Press. 15.27
H.T. 48.74 Front

76 Rev

455 1/2 pm

.4.1

24

---

76 Rev

Av. Press. Back
H.T. 15.93#
50.84

455 1/2 pm

4.14

28

Rev 74

Av. Press. 16.14# Front
H.T. 50.16

457 1/4

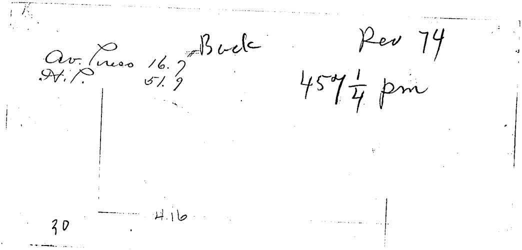
4.12

29

area = 2.22

area = 2.2

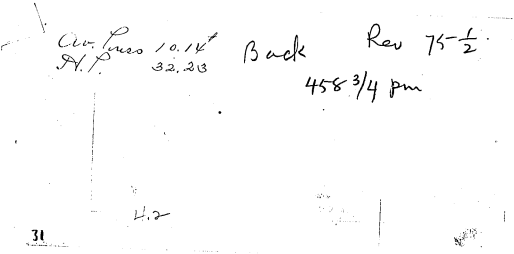
area = 2.07



Av. Press 16.7# Back
H.P. 51.9

Rev 74
457 1/4 pm

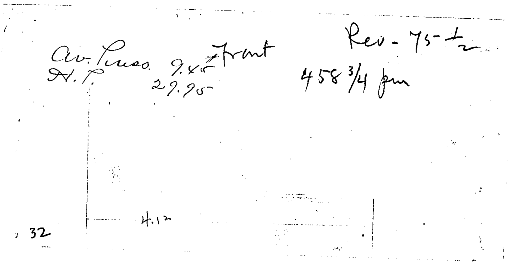
30



Av. Press 10.14# Back
H.P. 32.23

Rev 75-1/2
458 3/4 pm

31

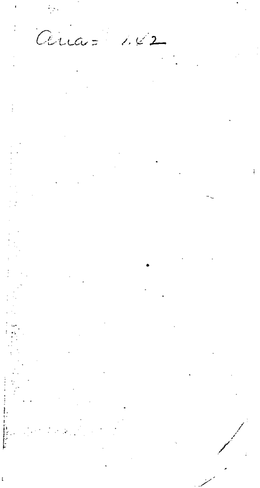


Av. Press 9.45# Front
H.P. 29.95

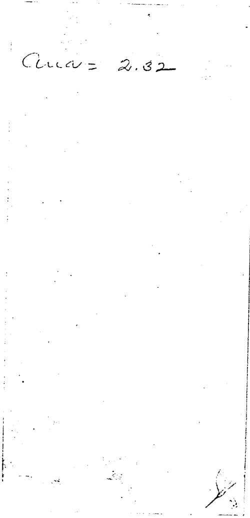
Rev - 75-1/2
458 3/4 pm

32

Area = 1.3



Area = 1.62



Area = 2.32

Burk

Av. Press 9.2 Rev 77.
H.P. 29.44

501 pm

33 4.2

Av. Press 9.6 # Rev 77
H.P. 30.72 front

501 pm –

7 people in Car
2 in Lozo –

34 4.15

#1 Av. Press 9.27 H.P. 29.94
#2 " " 5.70 " " 18. front
#3 " " 7.00 " " 24.27

77 Rev

1 only track heaviest
2nd ~~Without~~ track or field [illegible]
3rd with Field – middle

35 4.2

area #1 = .8 Length =
area #2 = 1.05 Length =
area #3 = 1.3 Length =

area = 1.35

area = 1.3

Av. Press 6.3# Back
H.P. 20.4

77 Rev

4.2

36.

#1 Av. Press 9.03 H.P. 28.8 Front.
2 Av. Press 7.95 H.P. 25.67
3 Av. Press 6.12 H.P. 19.76

1st 76 Rev
2+3rd 77 Rev

Track in
2nd Track off field on
3rd Field off

3rd

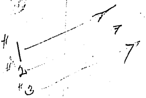
37

4.15

#1 Av. Press 10.3 H.P. 32.85 Deck
#2 Av. Press 7.5 H.P. 24.
#3 Av. Press 5.7 H.P. 18.24

1st 76 Rev
2+3rd 77 "

1 Track in
2nd Track off field on
3rd. field off =



4.2

38

#3 Area = .8
#2 Area = 1.05
#1 Area = 1.45

#3 Area = .85 Length =
2 " " = 1.1 " " =
1 " " = 1.25 " " =

Area of largest card = .9
Length =

Nov. 22/82

Mr. Edison —

Here are the first set of cards with passage in armature.

Yrs Truly

Chas L Clarke

Taken Sunday 19th

Nov. 23/82

T. A. Edison, Esq.

I return your letter cards taken with freight loco. The leakage is but a small part of what it was on Sunday. I cannot understand why the [illegible] requires so much power.

Yours truly

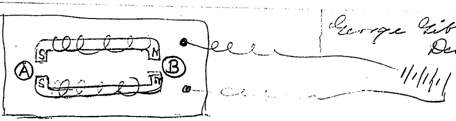
Chas. L. Clarke

20.

Freight Loads & cars

Important

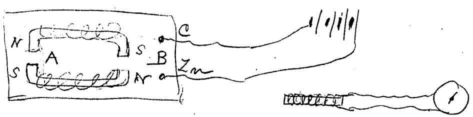
Experiments



George Gibbs
Dec 1st
1882

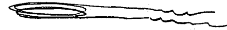
Like poles opposed:—
Exp. III - With coil and iron core.—
Passing coil in at Ⓐ deflection — right.
" " out " Ⓐ " — left.
" " in at Ⓑ " — left.
" " out " Ⓑ " — right.
" " in " Ⓐ " — right
and through & out " Ⓑ " left.
Then, — reversing coil end for end, pass back in at Ⓑ — left — through and out at Ⓐ right.
Reversing the coil end for end, reverses the direction of deflection in each case.

Without iron core the directions of deflection are the same in each case but magnitude is not nearly so great. With iron core the deflection is very great, showing that the core very much increases the induced current



With coil and soft iron core, and magnets coupled up as shown with unlike poles opposite, I obtained no deflection in galvanometer when lines of force were cut by coil passing between poles. But if the coil was passed through nearer one pole than the other a slight deflection was observed, due to unbalanced magnetic forces.

I also tried passing through the magnets arranged as above a piece of wire looped several times around either a wooden or iron core, thus.—



The results were the same as with the coil.

The iron core in these cases merely increases the strength of the induced current. (where any).

365
2
730
182
91 80
6
480
40
520

4) 250
3

.850
11 50
30 00
7 50
5.750.

Lamps

250
6
1500

35
4
140

139
4
556
69
365
625

250
3
750

35
4
140
6
840
365
4200
420
5040
2520
30.6.6
22
86
66
20
19.8

(.139

6

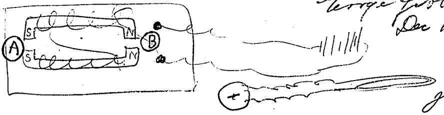
365

182
365
547

250
6
1500
5
7.500

14

7.50.
225
3750
1500
1500
16.875



George Gibbs
Dec 1st
1882.

J. F. Ott

Exp IV — Wire loop with iron core like poles opposed. —

In at Ⓐ — deflection — left.
Out " Ⓐ " right.
In " Ⓑ " right.
Out " Ⓑ " left.
In " Ⓐ (left) through & out at Ⓑ def. — (right).

Reversing loop end for end the deflection remains the same in each case above.

Passing coil from above down through at Ⓑ (like poles opposed). — deflec. — right. + passing coil up — deflec. — left.

Same operation at Ⓐ: —

Down — left,
Up — right.

The results are the same in all cases if the iron core be omitted, except that the current induced is very weak. (over)

Remarks: —

The induced current is not nearly so strong with the loop as with a coil, and unless the loops have an iron core, the deflection by galvanometer is very slight & only just perceptible. J.G. —

(1882.)

Try two Lead plates in Conc Sol Sulphide Soda

Try hard & soft Carbon ~~and [illegible]~~ in hot Sol Sulphide Soda,

Try Copper plates & Iodide potassium. also Copper plate coated with Iodine after roughening so as to make Coating Iodide Copper use Iodide pot Sol also SO_2 in another Experiment

Tried Dec 2 Didnt work very well

E